

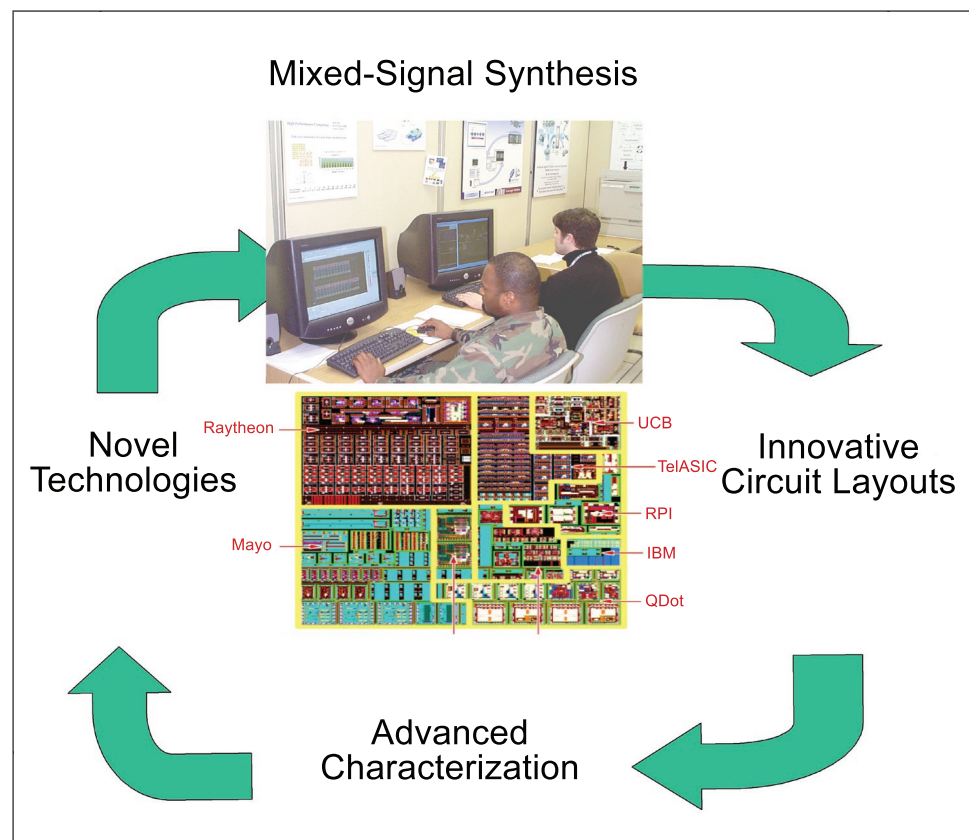


# Air Force Research Laboratory|AFRL

*Science and Technology for Tomorrow's Air and Space Force*

## Success Story

### MIXED-SIGNAL DESIGN CENTER



The Sensors Directorate's Aerospace Components and Subsystems Technology Branch developed a mixed-signal design center that is capable of rapidly solving the challenges associated with mixed-signal integrated circuit design, synthesis, fabrication, and characterization.



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### **Accomplishment**

Over a period of 18 months, the directorate's mixed-signal design center developed prototype synthesis tools and novel on-wafer characterization methods as a means to evaluate new mixed-signal integrated circuits developed by the Department of Defense (DoD), commercial businesses, and universities. Through direct team participation in multi-project fabrications, directorate engineers assisted radio frequency developments to technologies such as fully depleted silicon-on-insulator complementary metal oxide semiconductor and 7HP silicon germanium.

### **Background**

The mixed-signal design center represents a parallel approach to merge advanced design tools with appropriate analysis methods so their combined paths lead to more complex and highly functional integrated circuits. Working with other DoD agencies, industry, and academia, the state-of-the-art center represents over \$2 million in shared investment. The resulting microelectronics are capable of mixed-signal operation, and directorate engineers can feed the highly accurate models back into system-level architectures to perform more complicated tasks such as receiver-on-a-chip operation.

The mixed-signal design center resources comprise an invaluable piece of the larger directorate and DoD technology push for increased functionality to multi-bandwidth receiver applications. The mixed-signal design environment possesses the capability for partnerships as novel opportunities arise, and the knowledge gained through research projects allows our scientists and engineers to act in the capacity of intelligent technology brokers.

Sensors  
Emerging Technologies

### **Additional information**

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-SN-09)